

am^{LED} PCW-ODFN-2-W0850

Datasheet

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PCW-ODFN-2-W0850 850 nm VCSEL array module

1 General description

This chip is 2W, 850nm, emitter array measuring 1.1mm x 1.1mm. Wavelength stabilized at 0.07 nm per °C and narrow spectral width of < 1nm (typ). The target application space is robotics and 3D sensing.

2 Ordering information

Product type	Ordering code	Description	Delivery form
PCW-ODFN-2-W0850	Q65114A0944	VCSEL array module	Tape & reel

3 Absolute maximum ratings

Stresses beyond those listed under “Absolute Maximum Ratings” may cause permanent damage to the device. These are stress ratings only. Functional operation of the device at these or any other conditions beyond those indicated under “Operating Conditions” is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

Table 1: Absolute maximum ratings of PCW-ODFN-2-W0850

Symbol	Parameter	Min	Max	Unit	Comments
Temperature storage conditions					
T _{STRG}	Storage temperature range	-40	80	°C	
T _{OPR}	Operating temperature	0	80	°C	
Electric current					
I _R	Reverse current	-	25	mA	
I _F	Forward current	-	5	A	

4 Operating characteristics

4.1 Operating specifications

Table 2: Electrical/optical characteristics

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
I_{op}	Operating current	P_{out} , 20°C heat-sink	-	2.7	3.0	A
P_{out}	CW output power	3A, 20°C heat-sink	2	2.5	-	W
V_{op}	Operating voltage	P_{out} , 20°C heat-sink	-	2.0	2.4	V
PCE_{op}	Operating PCE	P_{out} , 20°C heat-sink	30	40	-	%
I_{thres}	Threshold current	20°C heat-sink	-	0.7	-	A
R_d	Differential resistance	P_{out} , 20°C heat-sink	-	150	200	mΩ
Slope	Slope efficiency	20°C heat-sink	-	1.1	-	W/A
Spectral width	(FWHM)	P_{out} , 20°C heat-sink	-	1	-	nm
Wavelength shift		20°C heat-sink	-	-	0.07	nm/°C
Center wavelength		P_{out} , 20°C heat-sink	840	850	860	nm
Beam divergence	(1/e ²)	P_{out} , 20°C heat-sink	15	19	25	°
Emission area		-	-	1.1 x 1.1	-	mm ²

4.2 Typical operating characteristics

Figure 1: Electro-optical performance

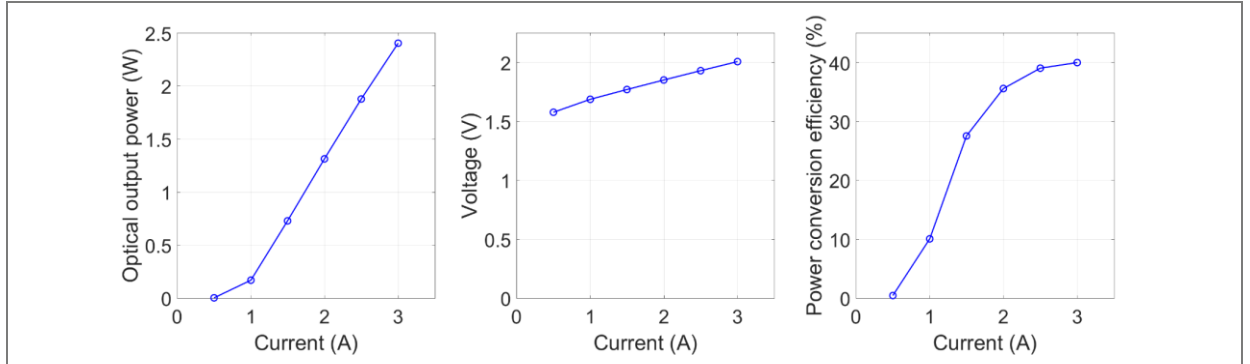
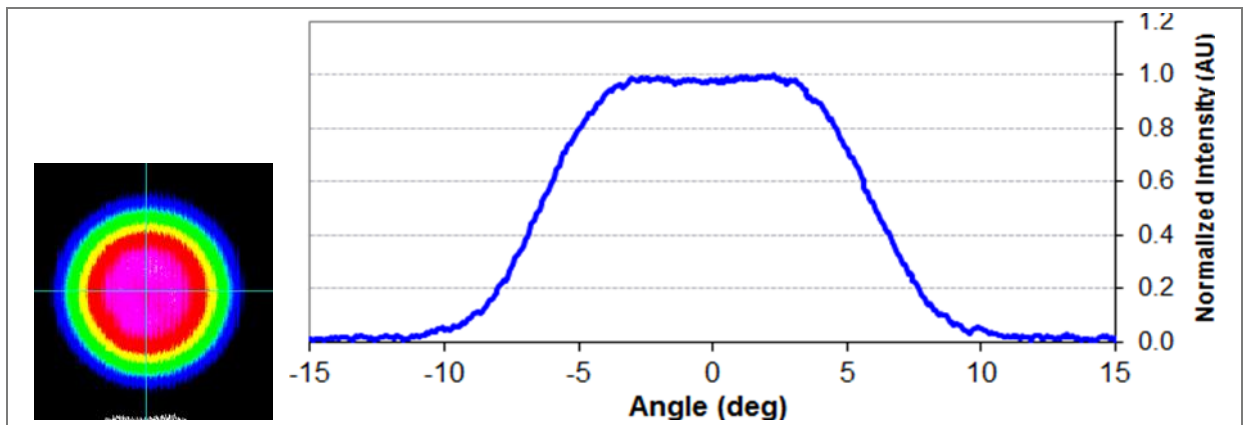


Figure 2: Far-field pattern and beam profile on flat plane



5 Mechanical & environmental

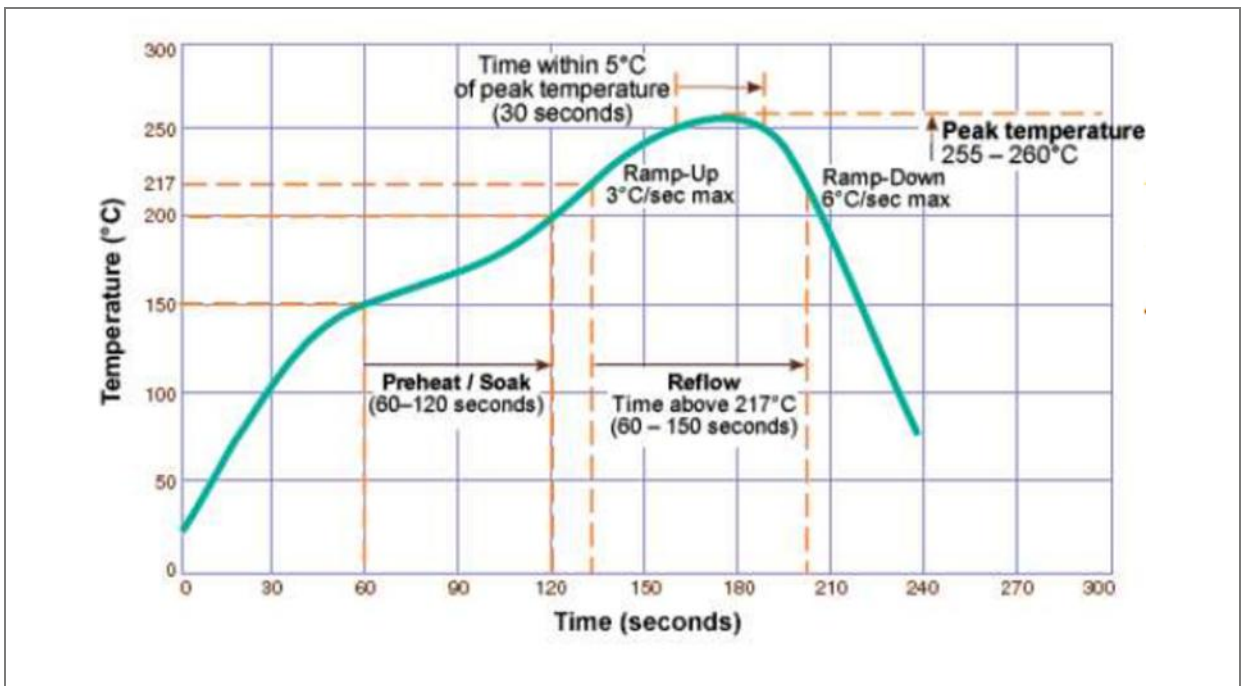
5.1 Mechanical characteristics

Table 3: Mechanical characteristics

Parameter	Dimension
Package width	3.0 mm
Package length	3.0 mm
Package height	0.65 mm
Max solder temperature	260°C

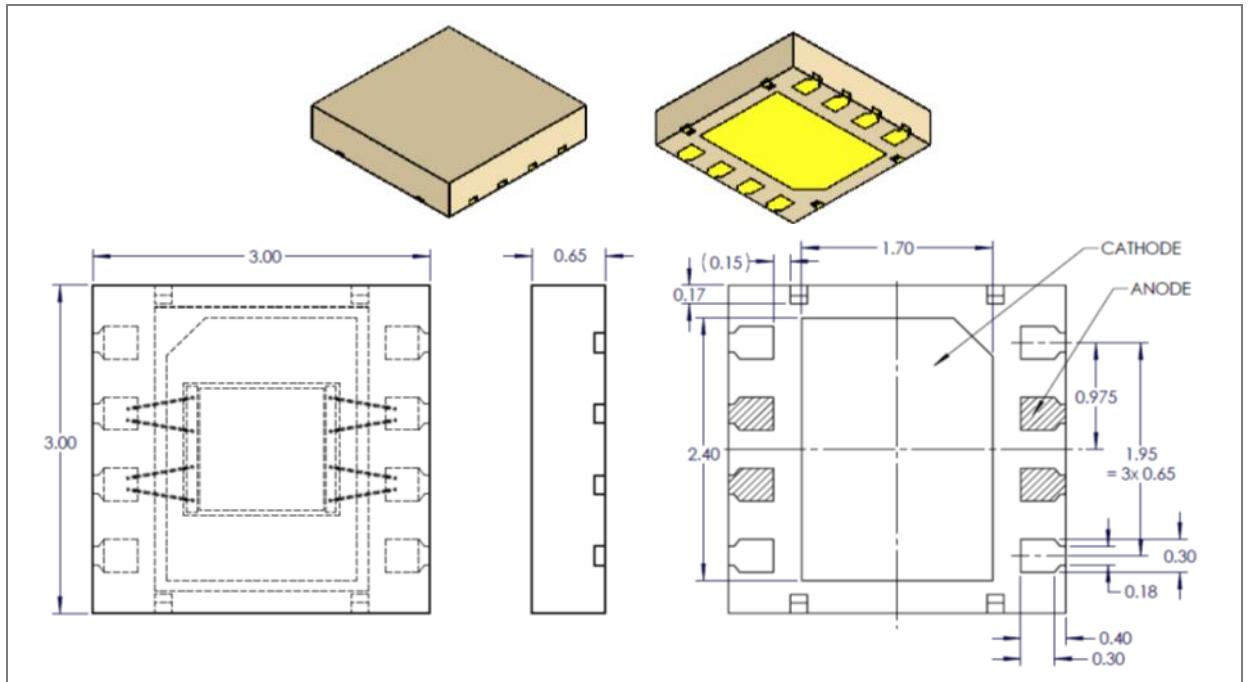
5.2 Reflow parameters

Figure 3: Reflow parameters



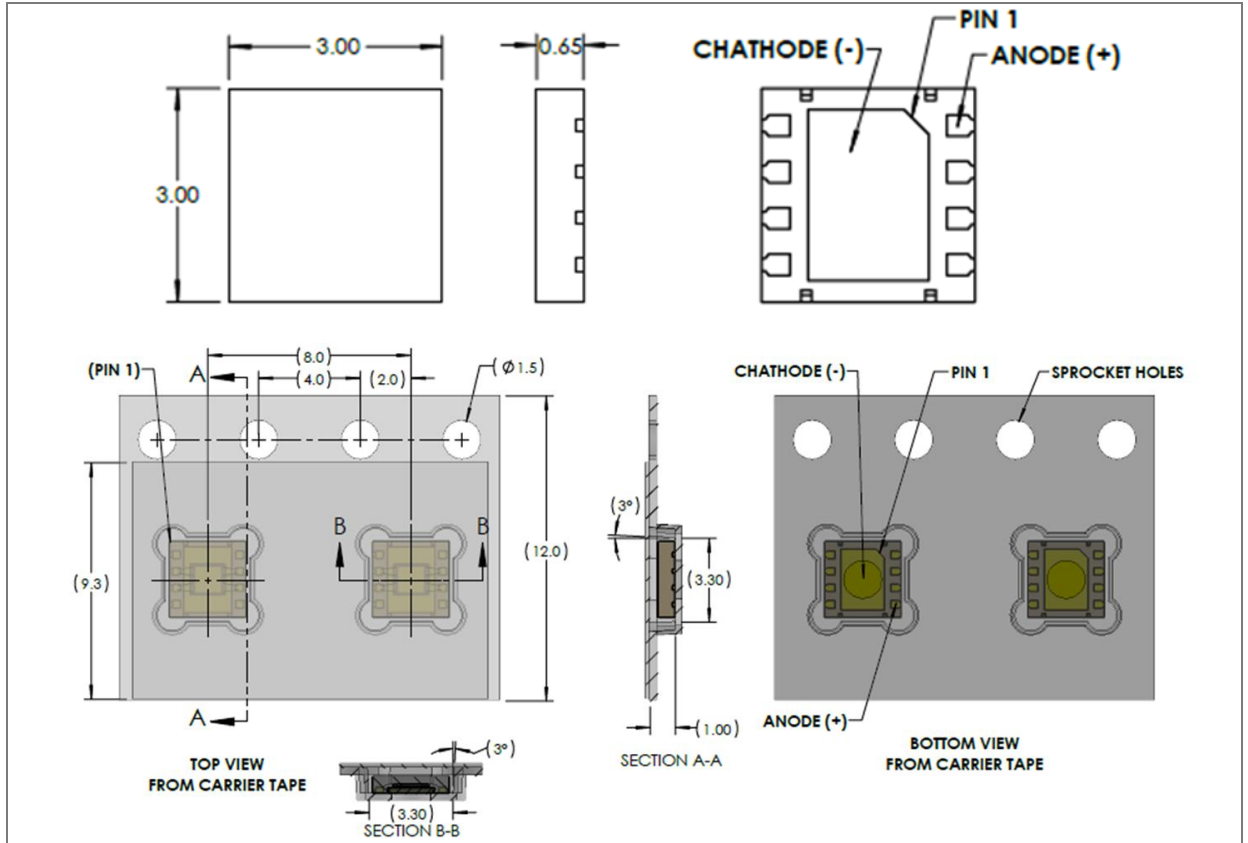
5.3 Mechanical drawing

Figure 4: Mechanical drawing



- (1) All dimensions in mm
- (2) Anode and cathode: Cu with surface finish of Au coating.

Figure 5: Package drawing



- (1) Tape and reel: ASE ODFN8_3x3x0.7p0.65 tape and reel carrier tape 12 mm carrier tape, 8 mm spacing, black ESD polycarbonate, 9.3 mm cover tape 7" or 13" reel
- (2) Orientation: Pin 1 of cathode toward to sprocket holes

6 Handling

It is recommended to pick up a VCSEL die by using a soft vacuum tip to contact directly the top light emission surface.

7 Appendix

7.1 RoHS & reach compliance

Not determined.

7.2 Safety advice

Depending on the operational use of the device, the part can emit highly concentrated nonvisible infrared light which can be hazardous to the human eyes. Products incorporating this VCSEL die may have to follow the safety precautions described by IEC 60825-1 and IEC 62471.

This product emits infrared radiation and is a Class IV laser. All appropriate safety precautions should be exercised in the operation and use of this product. Avoid direct eye or skin exposure except as may be determined and directed by Purchaser. Appropriate protective eyewear should be worn when operating. Use of magnifying optical instruments with this component may increase eye hazard.



8 Revision information

Document status	Product status	Definition
Product Preview	Pre-development	Information in this datasheet is based on product ideas in the planning phase of development. All specifications are design goals without any warranty and are subject to change without notice
Preliminary Datasheet	Pre-production	Information in this datasheet is based on products in the design, validation or qualification phase of development. The performance and parameters shown in this document are preliminary without any warranty and are subject to change without notice
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- Page and figure numbers for the previous version may differ from page and figure numbers in the current revision.
- Correction of typographical errors is not explicitly mentioned.

9 Legal information

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